



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,569	06/16/2006	Levent Gulari	FIS920030182US1	7980
32074 7590 07/09/2010 INTERNATIONAL BUSINESS MACHINES CORPORATION DEPT. 18G BLDG. 321-482 2070 ROUTE 52 HOPEWELL JUNCTION, NY 12533				
EXAMINER				
HA, NATHAN W				
ART UNIT		PAPER NUMBER		
2814				
NOTIFICATION DATE		DELIVERY MODE		
07/09/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

EFIPLAW@US.IBM.COM

Office Action Summary

Application No.

10/596,569

Applicant(s)

GULARI, LEVENT

Examiner

Nathan W. Ha

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/22)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 5/08, 5/08, 11/09

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I, claims 1-14, in the reply filed on 4/15/10, is acknowledged.

Claim Objections

2. Claims 1-14 are objected to because of the following informalities: the Office suggests to remove all of the element digits in the claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-5, 7-8, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forbes (US 7,262,428) in view of Yamagata (US 6,653,209.)

In regard to claims 1, 3-4, and 14, in fig. 4f, Forbes discloses a process for manufacturing a silicon-on-insulator wafer comprising the steps of:

- (a) providing a silicon substrate (110);
- (b) forming an oxide insulator layer (136) across the wafer (500), the insulator layer being buried within the silicon substrate, dividing the silicon substrate from a top silicon layer, see fig. 1A, for example, and having a top surface and a bottom surface;

thickening the insulator layer, see figs. 2A-2B;

(d) creating at least one of a contoured top surface and a contoured bottom surface of the insulator layer, see fig. 2b.

Forbes does not expressly describe a step of annealing to further thicken and contour the insulator layer. Nevertheless, annealing method is widely established in the art since such method provides uniformed and smooth surface and also cost effective. For instance, Yamagata discloses an analogous device and also teaches a step of using anneal process in order to take the advantage. See also, Yamagata's col. 4, lines 46-60 and col. 6, lines 62-65.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to adapt a well know process as taught by Yamagata in order to take the advantage.

In regard to claims 5, wherein the at least one contoured surface is uniformly convex. See fig. 2B.

In regard to claims 7-8 and 11-12, the above combination does not disclose exactly the size or shape of the contour. However, at the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the shape because applicant has not disclosed that it provides an advantage, is used for a particular purpose, or solves a stated problem.

One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with either shape because they perform the same function of separating the layers.

Therefore, it would have been obvious to one of ordinary skill in the art to modify Amos to obtain the invention as specify in the above claims.

Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed.Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Note that the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising therefrom. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

5. Claims 2, 6, 9-10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forbes and Yamagata as applied to claim 1 above, and further in view of Peckerar et al. (US 6,309,9934, hereinafter, Peckerar.)

In regard to claims 2, 6, 9-10, and 13, the above combination discloses all of the claimed limitations as mentioned. The combination, however, does not expressly disclose a step of using an oxygen implanter to form the oxide. It should be noted that the oxygen implanter tool is a well known machine that is widely used to implant oxide layer since the machine allows forming the layer with various depths.

Therefore, it would have been obvious to one of ordinary skill in the art to use a conventional tool to form the layer in order to take the advantage.

13. The process of claim 12 wherein the step (b) of forming an oxide insulator layer (2) across the wafer (10) is accomplished using a qualified oxygen implanter (50) and the step (d) of creating the at least one contoured surface includes reducing one or more of the implant dose, energy, and temperature to selectively pattern the buried insulator layer (2) with topography at predetermined coordinates.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/596,569
Art Unit: 2814

Page 6

/Nathan W. Ha/
Primary Examiner, Art Unit 2814